

Appl. No. 10/204,331
Response dated March 9, 2005
Reply to Office Action of November 9, 2004

REMARKS

The specification, claims, and drawings have been amended. No new matter has been added to the application.

Claims 1-26 are pending and stand rejected. Applicants have cancelled without prejudice claims 2-12 and 24-26. Applicants have added new claims 27-59. Accordingly, now pending are claims 1, 13-22, and 27-59. Applicants have included \$650 in excess claims fees.

In the Office Action the Examiner indicated that one or more items for the petition to correct inventorship were missing. In a telephone conversation with the Examiner on November 24, 2004, undersigned counsel confirmed with the Examiner that all petition items had been submitted. The petition was to correct inventorship under 37 CFR 1.48(a)(2) for applications where the original inventorship was incorrect (and not for changes to inventorship based on claim amendments -- 37 CFR 1.48(b)). In this petition two individuals (Michael Jones and Ian Henderson) were being added to the original two listed inventors (Colin Ramshaw and Roshan Jeet Jee Jachuck) (providing a total of 4 inventors). The two individuals being added as inventors each provided the statement of facts that the mistake occurred without deceptive intent on their part. The new oath submitted with the petition was signed by all four inventors. In a second telephone conference with the Examiner on March 3, 2005, undersigned counsel again confirmed with the Examiner that the proper documentation for the petition had been submitted. Accordingly, applicants respectfully submit that the petition to correct inventorship was complete and should be granted.

The disclosure was objected to requiring the addition of a heading "Brief Description of the Drawings." Applicants have made this amendment.

The drawings were objected to as failing to show element 18 as described in the specification. Applicants have amended Figure 1 to show element 18. Reference numeral 17 has also been added to Figure 1. Both annotated and replacement drawing sheets have been included with this response.

Claims 1-26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Porter et al. (4,549,998) in combination with GB 1 108 407 and Cowen et al (4,356,133). Applicants

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have amended independent claim 1 to more specifically point out differences in the claimed invention over the prior art. Applicants have also added new independent claims 27 and 42. As will be described below each of these three independent claims are believed to be patentable over the cited references. All remaining claims are dependent directly or indirectly on one of these three independent claims and believed patentable.

Amended claim 1 is a combination of existing claims 1, 6, and 7 with the additional limitation that the shear member only contacts the thin film at small predetermined regions of the rotating surface (which is substantially planar) so as to provide additional shear mixing in those regions, while still allowing the thin film to flow freely over the other regions of the surface. This is supported by Figure 2 and the accompanying parts of the description.

New claim 27 is a combination of existing claims 1 and 8 with the same additional limitation as applied to claim 1. This is supported by the embodiment of Figure 3 and the accompanying parts of the description. The new dependent claims 28 to 41 correspond generally to the existing claims depending from claim 1.

New claim 42 is directed towards a method of mixing using the reactor of claim 1 or claim 27, with corresponding dependent claims.

Turning now to the prior art, the Examiner acknowledges that Porter et al. (4,549,998) does not disclose a shear member close to the rotating surface of the thin film member. However, the Examiner concludes that GB 2 108 407 discloses a stator and rotor structure with intersecting teeth that apply shearing forces to a reaction mixture located therebetween. Applicants respectfully disagree with the Examiner's interpretation, but consider that the proposed amendments to claim 1 overcome the Examiner's objection by virtue of the limitation that the shear member only contacts the thin film at small predetermined regions of the planar rotating surface so as to provide additional shear mixing in those regions, while still allowing the thin film to flow freely over the other regions of the surface.

In GB 2 108 407, the rotor (1) is the uppermost component and is not substantially planar since it includes toothed elements. In particular, it is apparent that the reactant mixture does not pass as a thin film across the surface of the rotor (1) purely as a result of centrifugal force, since

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the reactant mixture is supplied under pressure through feeds (5, 6) and by virtue of gravity will not travel across the upper, rotor surface as a thin film, but is flung between the toothed elements for intensive mixing. In other words, GB 2 108 407 does not disclose a thin film spinning disc reactor as defined in the claims of the present application, but instead describes a shear mixer in which no thin film is generated on a rotating planar surface.

More specifically, GB 2 108 407 does not disclose a shear member in the form of a peripheral basal surface of a dome or canopy or cylindrical or tubular member adapted to contact parts of the film when it is on the rotating surface.

Accordingly, Applicants respectfully submit that even the combination of Porter et al. (4,549,998) and GB 2 108 407 does not teach or disclose the reactor as claimed in claim 1.

With regard to Cowen et al (4,356,133), Applicants respectfully disagree with the Examiner's conclusion that Cowen discloses an RSORT-type reactor that may have a generally conical interior surface. However, for the reasons set out above, it would not be obvious in view of GB 2 108 407 to provide a shear member as claimed in new claim 27, since GB 2 108 407 does not teach the application of shear to a thin film actually traveling across a rotating surface, but only teaches mixing by throwing a reactant between toothed members of a rotor and stator respectively. Accordingly, Applicants believe that new claim 27 is not obvious in view of Porter et al. (4,549,998), Cowen, and GB 2 108 407.

New method claim 42 is likewise distinguished over the prior art of record.

Applicants respectfully submit that the application is in condition for allowance. A Notice of Allowance is hereby respectfully requested.

Should the Examiner feel that a telephone conference would advance the prosecution of this application, she is encouraged to contact the undersigned at the telephone number listed below.

Applicant respectfully petitions the Commissioner for any extension of time necessary to render this paper timely.



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Please charge any additional fees due or credit any overpayment to Deposit Account No. 50-0694.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Brett A. North".

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I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: MAIL STOP AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the 9 day of March, 2005.

A handwritten signature in black ink, appearing to read "Brett A. North".

Brett A. North

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IN THE DRAWINGS

The attached sheet of drawings includes changes to Figure 1. This sheet, which includes Figure 1, replaces substitute sheet (Rule 26) 1/3 as entered in the U.S. national stage. In Figure 1, reference numerals 17 and 18 have been added. The added dashed line (to which reference numeral 18 is attached) indicates shear member 18. Reference numeral 17 indicates thin film 17. An annotated sheet showing the changes has also been submitted.

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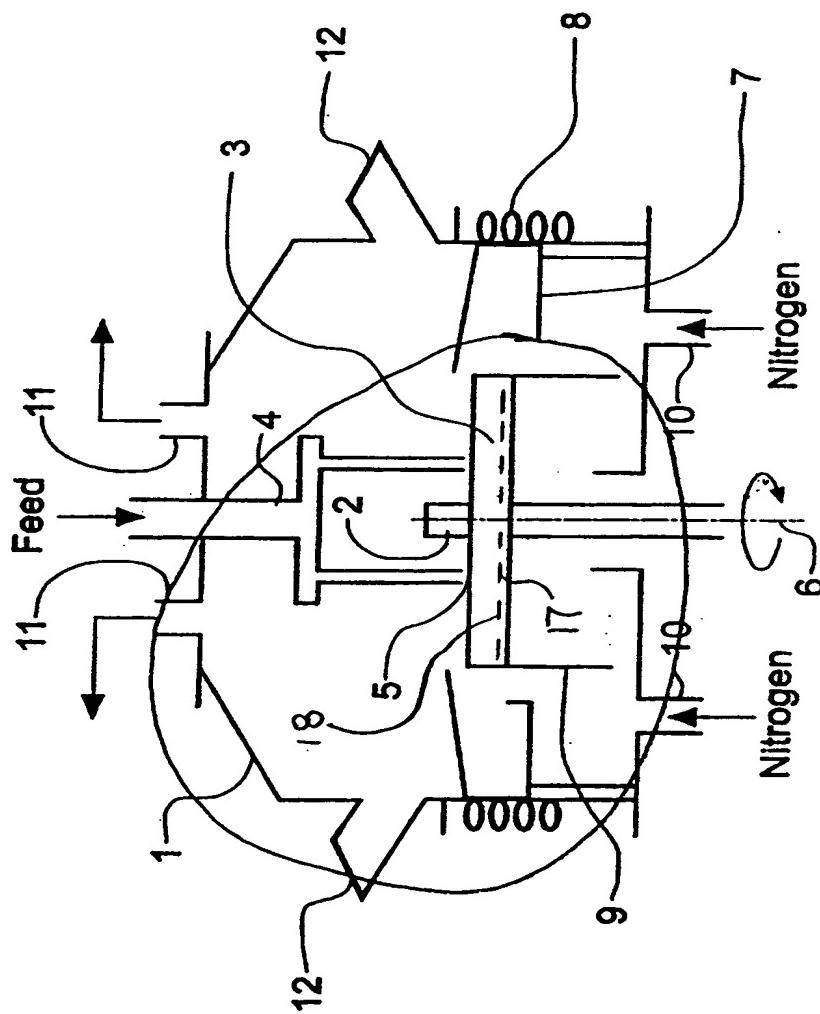


Fig. 1